

Constructive Play on Numeracy Skills in Elementary School

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Abstract

The research objective in this paper is to find out how constructive games are on numeracy skills in elementary schools. This research is expected to contribute to schools and enrich the results of existing research and can provide an overview of how constructive play is on numeracy skills in elementary schools. This research is a type of classroom action research. This type of classroom action research used in this research is collaborative, namely that the person who will take the action must also be involved in the research process. In this activity, all who are involved in this research are full involved in the process of planning, acting, observing, and reflecting.

Keywords

numeracy skills;
constructive play;
primary school



I. Introduction

Development and progress in all aspects of the life of a nation and state cannot be separated from the development and advancement in the field of education. Basically, education is an effort to direct someone towards maturity by providing knowledge sharing, training various skills, planting good values, and proper and reasonable attitudes. However, in reality, education in Indonesia faces many obstacles. These constraints include: the curriculum that does not bring changes to students, the quality of education is not very good, and the distribution of teachers is inadequate, the facilities and infrastructure are still limited and also the learning environment in schools, families and communities that are not yet supported. Students who are in grade one elementary school are in the early age range. At that age, all aspects of intellectual development such as IQ, EQ, and SQ grow and develop in an extraordinary manner. In general, the level of development of first-grade students.

(P, 2015) revealed that primary school education is a form that has a very important role in developing children's personalities so that they can prepare themselves for the next level of education. Primary school education is a bridge between the family environment and the social or community environment. According to (Akhmadi, 2012) that the essence of intelligence is the ability to be determined and maintained to achieve a goal, adjustments in order to achieve a state of self critically and objectively. According to (Goleman, 2000) intellectual intelligence (IQ) only provides 20% for success, while 80% of the other factors are emotional intelligence or Emotional Quotient (EQ), namely the ability to motivate oneself, overcome frustration, control urge and desire. . set the mood (mood), empathy and the ability to work together. Elementary school is basically, education that is organized with the aim of facilitating the growth and development of children as a whole or emphasizing the development of all aspects of a child's personality as it means that elementary school education provides opportunities to develop children's personalities, therefore education for early childhood especially in schools. The foundation needs to provide various activities that can develop various aspects of child development (Reflina Sinaga & Tanjung, 2019).

II. Review of Literatures

Integrated learning is a learning strategy based on an integrated curriculum approach that aims to create or create a learning process that is relevant and meaningful for children (Masyitah, 2018). The essence of learning is that students understand the relationship between one material and another or between one subject and another. This integrated learning method is a learning system that allows students to seek, explore, and discover scientific concepts and principles in a holistic, meaningful and authentic manner. The active participation of students will make it easier for students to remember. According to Sandjaja (2005) explains that 10% of information will be remembered if only read, 20% heard, 30% seen, 50% seen and heard, 70% said while speaking and 90% of what is said when someone does something.

According to (Sandjaja, 2004, p.2) there are three types of integrated learning models, namely:

- a) The connectedness model: deliberately trying to connect one concept to another, one topic to another.
- b) The spider web model: uses a thematic approach through discussion between teacher-students or fellow teachers, then develops a network of topics, specific learning objectives, materials, teaching and learning activities and their valuations.
- c) Integration model: using an inter-subject approach by setting curriculum priorities and finding overlapping concepts, attitudes and skills in several subjects.

Argues that counting comes from the word count which has the meaning of a state, after getting the prefix it changes to a meaning that indicates a counting activity (adding, subtracting, dividing, and multiplying and so on). The states that the ability to count in a broad sense is one of the most important abilities in everyday life. It can be said that in all activities of human life this ability is required. Meanwhile, according to Peterson, he suggested that, to emphasize the meaning and understanding and to develop the ability to think at a higher level, problem solving in mathematics is not only an integrated part of learning, but must be the basis or core of activities. Mathematics is essentially a way of learning to regulate one's mindset with the intention that through mathematics a person can regulate the course of his thoughts Suriasumantri (Susanto, 2011: 98). In this connection, one of the branches of mathematics is arithmetic. Counting is the basis of several sciences that are used in everyday life such as addition, subtraction, division, or multiplication. Early childhood can add and subtract and compare very well after the child understands numbers and numbers (Nawafilah, & Masruroh, 2020). Based on some of the above opinions it can be concluded that counting is an activity or a fun way to learn to understand the concept of numbers. The Concept of Counting in Elementary School Children include of:

a. One One Correspondence

First start by experimenting with counting from a very simple level. Example: one book, one pencil, one stone, and so on.

b. Pattern Pattern

Is the ability to bring up the arrangement so that the child is able to predict the next sequence after seeing the shape of two to three consecutive patterns. 3. Sorting / sorting / classification. Children learn material classification, grouping based on attributes, shapes, sizes, types, colors, and others.

c. Say

Memorizing numbers is the ability to repeat numbers that will help children understand the meaning of a number. Example: 1 2 3 4 5 6 7 8 Etc.

d. The meaning of numbers and their introduction

Each number has a meaning from objects or symbols.

e. Shape

Children are introduced to the same / different forms, big-small, long-short.

f. Size

Children need experience to measure weight, content, length by measuring directly so that the process of finding the number of an object.

g. Time and Space

These two things are part of the process of everyday life. Example: Time: 1 day Space: Narrow 2 days Wide

h. Addition and subtraction

These two things can be introduced to preschoolers by manipulating objects.

Games are tools for children to explore their world, from those unknown to what they know, and from what they cannot do to being able to do it. Playing for children has values and characteristics that are important in the progress of the development of daily life. At the outset every playing experience comes with risks. There are risks for children to learn, such as riding their own bicycle, learning to jump. Another element is repetition. Children consolidate their skills which must be realized in various games with different nuances. In this way children gain additional experience to do other activities. Through play, children can express their needs without being punished or subject to reprimands, for example playing dolls is likened to a real younger sibling (Masyitah. (2018). There are several theories that explain the meaning and value of the game, which are as follows:

2.1 Recreation Theory

State the game as recreational activity, as opposed to work and serious life. Adults seek out play activities when they feel tired after work or after doing certain tasks. That way the game can "refresh" the body that is tired again. Games are caused by the flow of energy, namely energy that has not been used and accumulates in the child demanding to be used or employed. In connection with that the energy "melts" and "uploads" in the form of a game. This theory is also known as the "excess power" theory (krachtoverschot-theorie). So play is a safety-valve for excess vital energy.

2.2 Attaiistic Theory

Stating that during development, the child will experience all phases of humanity. The game is the appearance of all factors of heredity (inheritance, heredity): that is, all human experiences throughout history will be passed on to their offspring, starting from the experience of living in caves, hunting, fishing, fighting, farming, humiliation, building houses. up to creating culture and so on. All of these forms are lived in by the child in the form of games.

2.3 Biological Theory

Stating that the game has a biological task, namely training various physical and spiritual functions. Playtime is a good opportunity for children to make adjustments to the life environment itself. The scholar William Stren states that play is for children as important as tactics and maneuvers in warfare, for adults. So the human child has adolescence which is used by playing to train himself and get joy.

2.4 Psychological Theory

According to Siregar (2020) every student has his own way in learning English. The different style in learning proved that everyone is unique with their different preferences. The unique things of students are influenced by some factors. The factors include ethnic group, age group, previous education level, speaking proficiency level, and learning program type. The multiple students' background show that conducting learning English in the classroom guides the teacher to accommodate the various types of learners.

In, according to this theory, play is the appearance of unconscious impulses in children and adults. There are two most important drives according to Alder are: the urge to power, and according to Freud is the sexual drive or libidi sexualis. Alder argues that, play provides satisfaction or compensation for fictional feelings of self. The game can also channel feelings of weakness and feelings of humility.

2.5 Phenomenological Theory

Stating, that the game is a real phenomenon / phenomenon. Which contains elements of a game atmosphere. The urge to play is an encouragement to live the atmosphere of play, which is not specifically aimed at achieving certain achievements, but the child plays for the game itself. So, the goal of the game is the game itself.

Purnamasari (2019) states that role playing definitions can be concluded that teaching children to play a game that is in accordance with the child's experience of something incident. This teaching can provide tangible results to a learning because children are directly involved in doing events or events, so learning that is intended can be achieved with optimal results. The game played in this teaching is about buying and selling games made by children aged 5-6 years, which is expected from the buying and selling game can foster the development of language and entrepreneurial attitudes. The teacher is expected to be able to organize a game model based on environmental insights in teaching and learning activities so that all children have good play experience and environmental knowledge and can be applied in their neighborhood (Budiningsih, 2020).

According to Andrson (2013) the game has the following characteristics: (1) there is a set of explicit rules that must be heeded by players, (2) there are goals that must be achieved by players or tasks that must be carried out. Type of game: According to Purwanto (2017) which is quoted from Hetzer, the kinds of children's games can be divided into five types, namely:

- a. Function play Games using body or limb movements.
- b. Constructive play Making a game, for example making a train.
- c. Receptive play While listening to stories or reading story books, children fantasize and receive impressions that make their souls active.
- d. Role play In this game you will play a role, for example, to act as a teacher.
- e. Game of success What is prioritized in this game is achievement, so it takes courage.

III. Research Methods

The research method is the method used by researchers in collecting research data. The method used in this research is classroom action research. Classroom action research in English is called classroom action research. This research is a type of classroom action research. Where the researcher collaborates with the principal or class teacher. The main purpose of Classroom Action Research is to improve the practice of classroom learning practice. This type of classroom action research used in this research is collaborative, namely

that the person who will take the action must also be involved in the research process. In this activity, all who are involved in this research are fully involved in the process of planning, acting, observing, and reflecting.

IV. Discussion

The implementation of classroom action research begins with the first cycle which consists of four stages. If it is known the location of the successes and the obstacles that arise from those implemented in the first cycle, the teacher or researcher determines the design for the second cycle activity. In the implementation of activities in the second cycle it can be in the same form as the previous activity if it is aimed at repeating success or means of convincing / strengthening results. However, the activities carried out in the second cycle have various additional improvements from previous actions which are of course aimed at fixing various obstacles or difficulties found in the first cycle.

4.1 Cycle Plan

Planning activities carried out in this stage are the preparation of learning tools, including the Learning Implementation Plan (RPP) about the natural and artificial environment, the media used in this learning include, props, namely various forms of concept map images, evaluation tools which include assessment rubrics and itemized questions (attached), as well as the observation sheet on the implementation of the lesson plan (attached), the lesson plan (RPP) in this cycle for three meetings in 3 hours.

4.2 Implementation and Observation

The activities carried out at this stage are to implement the Learning Implementation Plan (RPP) which has been compiled in classroom learning according to what the teacher wants, so this research plan is in the form of action research work procedures carried out in the classroom. The implementation of the 1st cycle action is in accordance with the programmed plan, namely:

- a. The research carried out learning the subject of "numeracy skills".
- b. Explain the subject matter and continue using the play method and provide group numeracy skills.
- c. Give students the opportunity to play an active role during the learning process such as asking questions, expressing opinions.
- d. At the end of the cycle, the teacher gives cycle 1 test questions.
- e. The teacher gives questions in the form of homework.

Observation activities are carried out as a means of collecting data related to the implementation of research actions. Observations are made by observers to observe learning activities that apply numeracy skills. The observer uses the observation sheet to collect data on learning activities, both teacher learning data and student learning data.

4.3 Reflection

The data were collected and then analyzed by the researcher. The analysis was carried out by measuring both quantitatively and qualitatively. The data obtained were collected and then concluded how the children's numeracy skills through constructive games in grade 1 students in elementary schools.

The data collected in this study are observational data (qualitative data) and evaluation test results. The data research techniques in this study are:

a. Observation

The observation stage actually goes hand in hand with the action stage. Observation is used to obtain data about teachers in the classroom, so that it can be seen that the implementation of learning is really in accordance with the expected conditions and processes. Observations were made of the learning process using the concept map method. At this stage, the teacher as a researcher makes observations and records all the things that are necessary and occur during the implementation of the action. Data collection was carried out using an observation or evaluation sheet that had been prepared. Lighting learning over time and its impact on student learning processes and outcomes. The data collected is in the form of test result data and questionnaire results that show the active learning activities carried out by the observer.

b. Test

The test is a series of questions used to measure the skills, abilities or talents of an individual or group (Kunto, 2016: 160). The form of the test used in studying the data is in the form of objective items to give quizzes at the end of each learning activity, and the form items are given at the end of each cycle. The tests included in this study are achievement tests or learning outcomes, namely tests that are used to measure someone after learning something.

V. Conclusion

The implementation of classroom action research begins with the first cycle which consists of four stages. If it is known the location of the successes and the obstacles that arise from those implemented in the first cycle, the teacher or researcher determines the design for the second cycle activity. In the implementation of activities in the second cycle it can be in the same form as the previous activity if it is aimed at repeating success or means of convincing / strengthening the results. However, the activities carried out in the second cycle have various additional improvements from previous actions which are of course aimed at fixing various obstacles or difficulties found in the first cycle.

This research is expected to contribute to schools and enrich the results of existing research and can provide an overview of increasing children's numeracy skills through constructive games in grade 1 students in elementary schools. The results of this study are expected to help provide information, especially to teachers on how to improve children's numeracy skills through constructive games for grade 1 students in elementary schools.

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